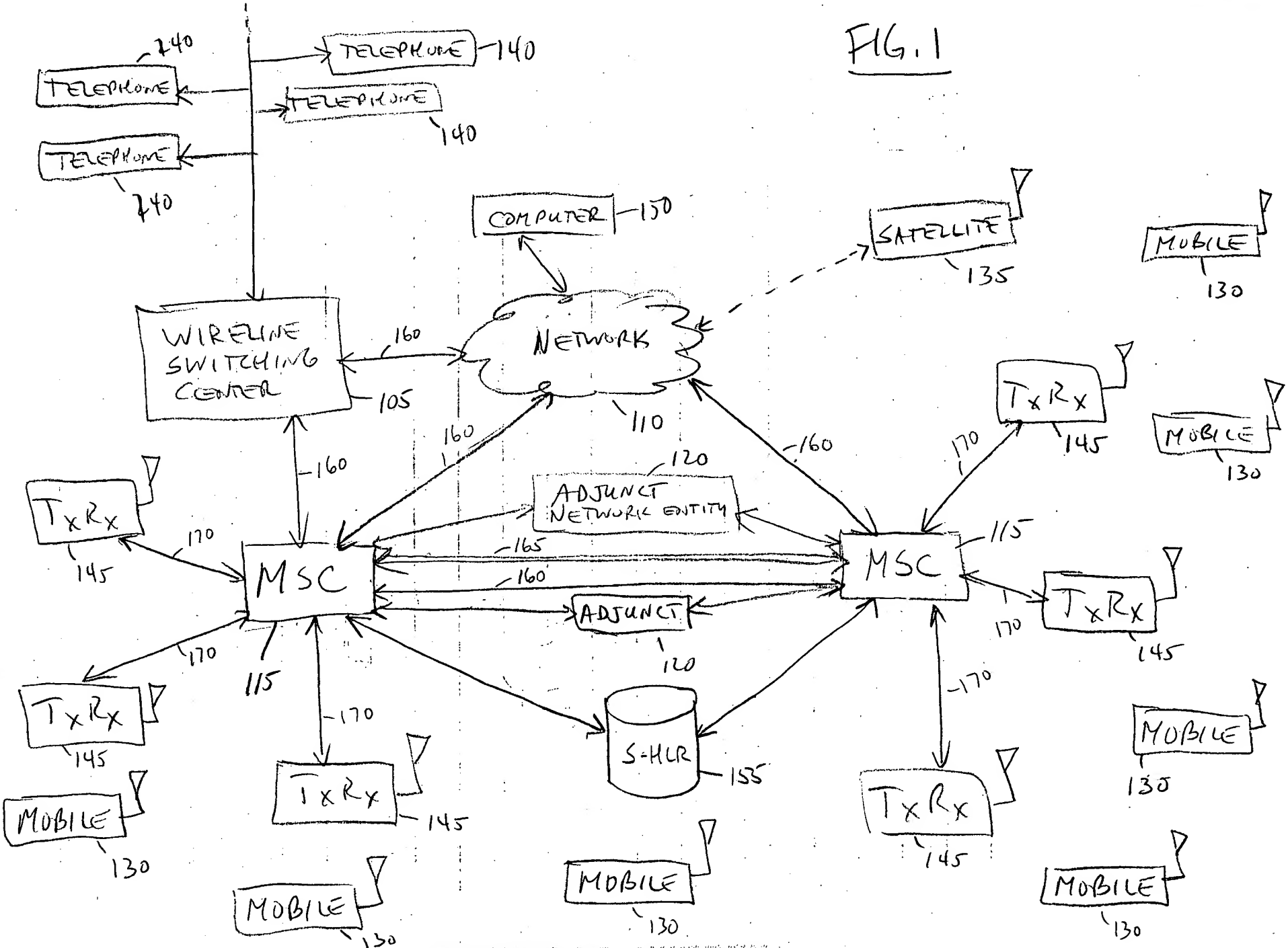
FIG. 1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TELEPHONE
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COMPUTER
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SATELLITE
135
MOBILE
130
WIRELINE SWITCHING CENTER
105
160
NETWORK
110
160
160
160
120
ADJUNCT NETWORK ENTITY
TxRx
145
170
MSC
165
160
MSC
115
ADJUNCT
120
TxRx
145
TxRx
145
170
115
170
170
S-HLR
155
TxRx
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TxRx
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MOBILE
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MOBILE
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MOBILE
130
MOBILE
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MOBILE
130
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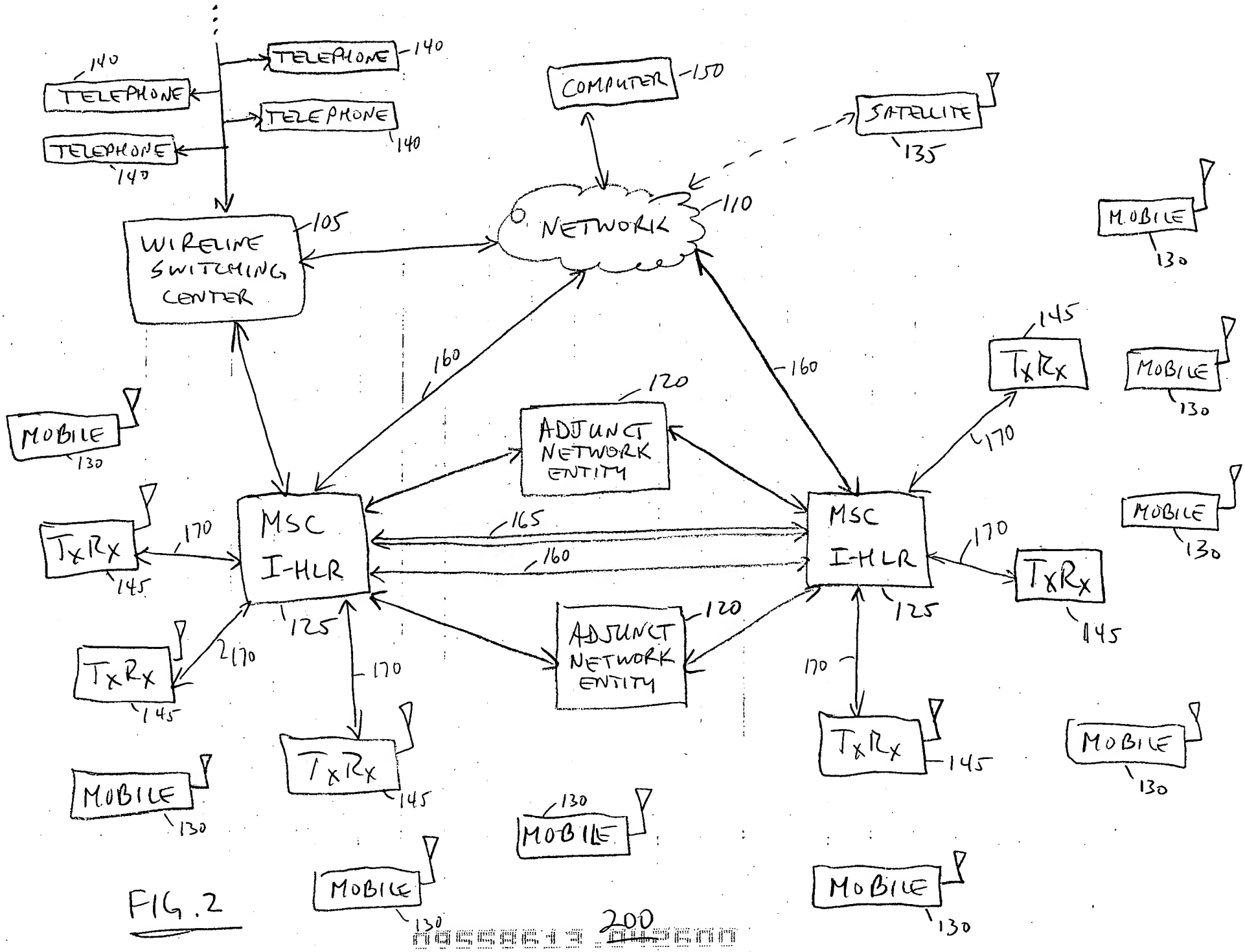
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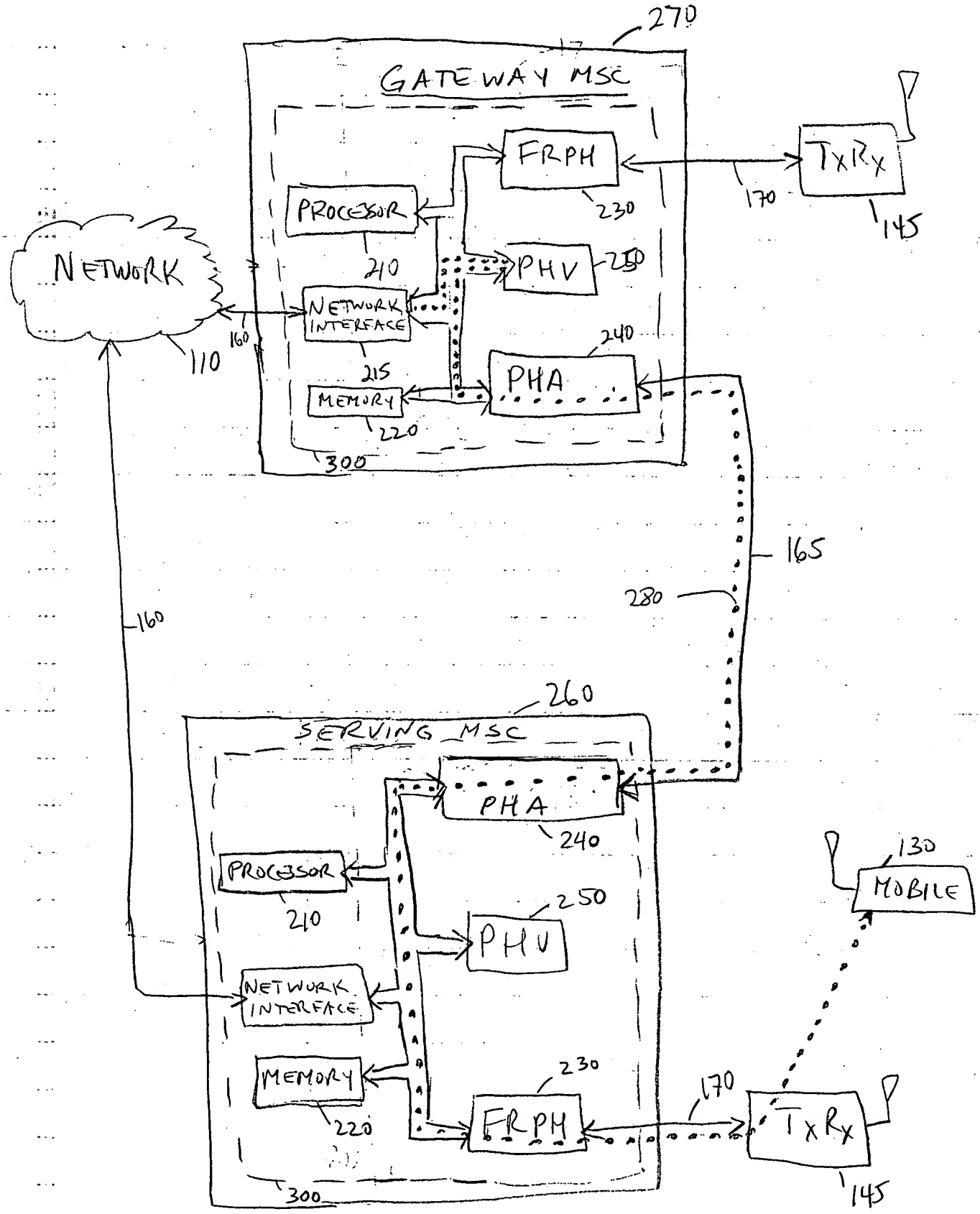
105
MOBILE
130
160
160
120
ADJUNCT NETWORK ENTITY
145
TxRx
MOBILE
130
170
MSC I-HLR
165
160
MSC I-HLR
125
125
ADJUNCT NETWORK ENTITY
120
TxRx
145
MOBILE
130

FIG. 2

200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GATEWAY MSC
FRPH
230
TxRx
170
145
PROCESSOR
210
PHV
250
NETWORK
NETWORK INTERFACE
160
110
215
MEMORY
220
240
PHA
300
165
280
160
260
SERVING MSC
PHA
240
PROCESSOR
210
250
PHV
NETWORK INTERFACE
MEMORY
220
230
FRPH
170
TxRx
145
300
130
MOBILE

FIG. 3

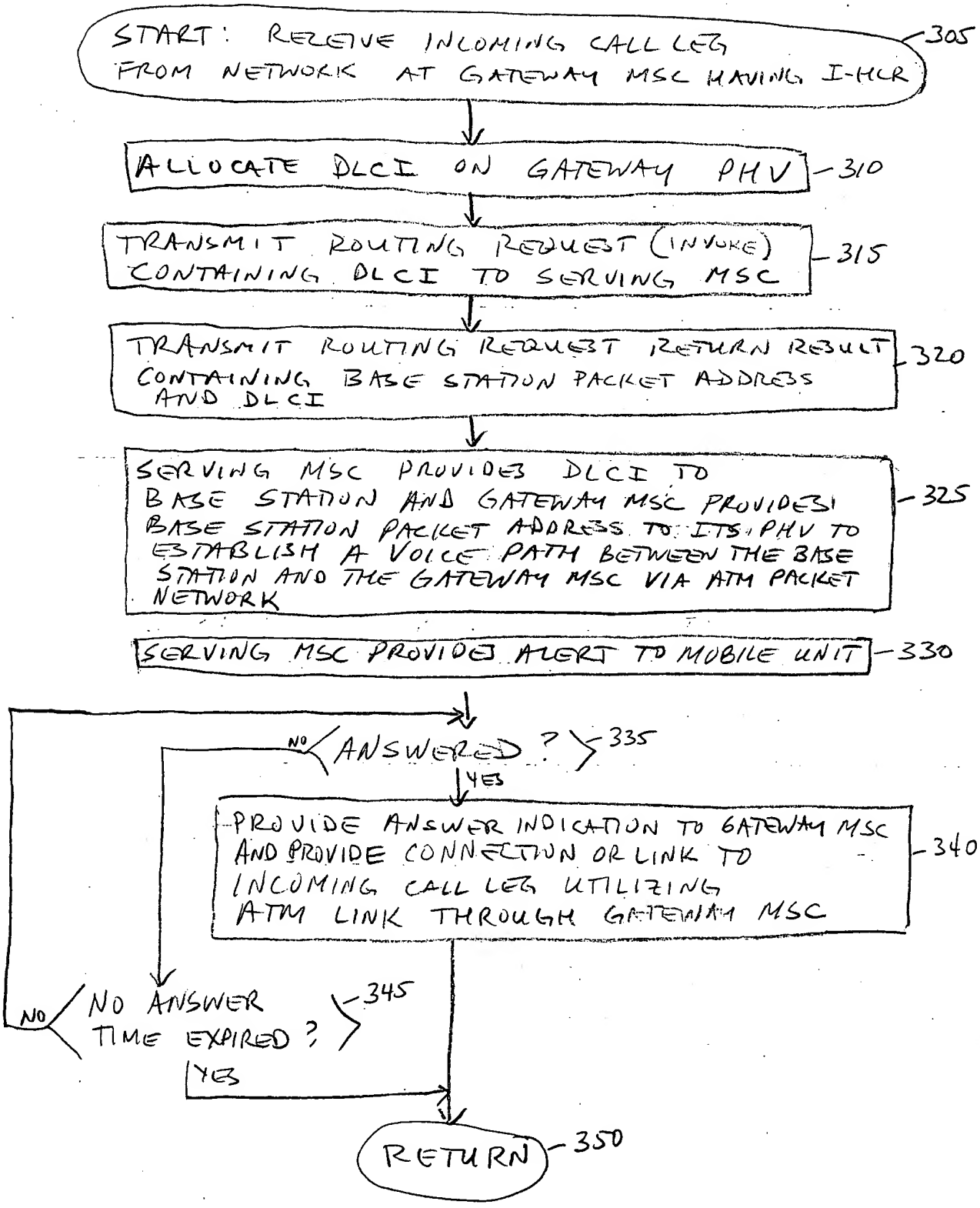

START: RECEIVE INCOMING CALL LEG FROM NETWORK AT GATEWAY MSC HAVING I-HCR
305
ALLOCATE DLCI ON GATEWAY PHV
310
TRANSMIT ROUTING REQUEST (INVOKE) CONTAINING DLCI TO SERVING MSC
315
TRANSMIT ROUTING REQUEST RETURN RESULT CONTAINING BASE STATION PACKET ADDRESS AND DLCI
320
SERVING MSC PROVIDES DLCI TO BASE STATION AND GATEWAY MSC PROVIDES BASE STATION PACKET ADDRESS TO ITS PHV TO ESTABLISH A VOICE PATH BETWEEN THE BASE STATION AND THE GATEWAY MSC VIA ATM PACKET NETWORK
325
SERVING MSC PROVIDES ALERT TO MOBILE UNIT
330
ANSWERED ?
NO
335
YES
PROVIDE ANSWER INDICATION TO GATEWAY MSC AND PROVIDE CONNECTION OR LINK TO INCOMING CALL LEG UTILIZING ATM LINK THROUGH GATEWAY MSC
340
NO ANSWER TIME EXPIRED ?
NO
345
YES
RETURN
350

FIG. 4

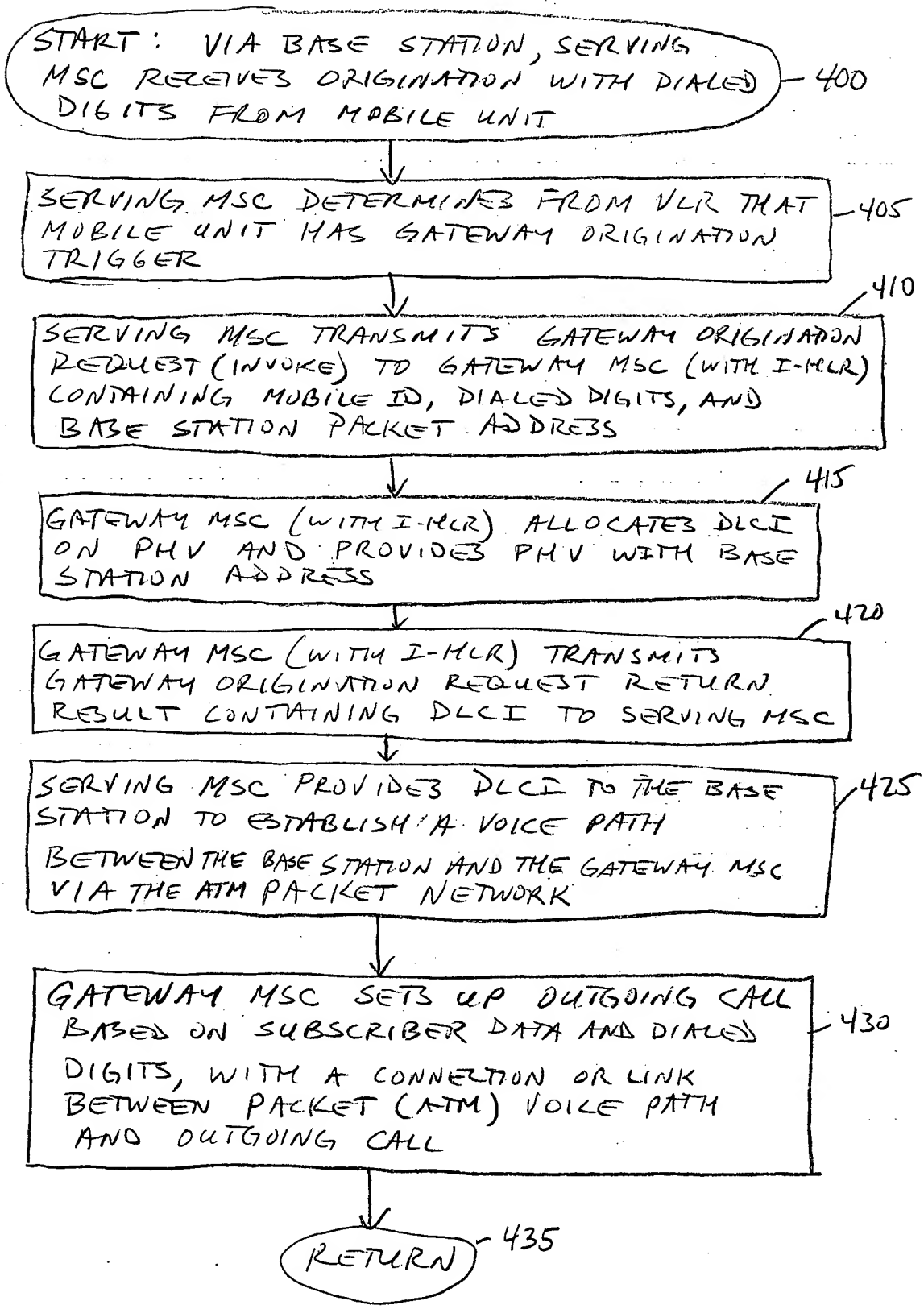

START: VIA BASE STATION, SERVING MSC RECEIVES ORIGINATION WITH DIALED DIGITS FROM MOBILE UNIT
400
SERVING MSC DETERMINES FROM VLR THAT MOBILE UNIT HAS GATEWAY ORIGINATION TRIGGER
405
SERVING MSC TRANSMITS GATEWAY ORIGINATION REQUEST (INVOKE) TO GATEWAY MSC (WITH I-HLR) CONTAINING MOBILE ID, DIALED DIGITS, AND BASE STATION PACKET ADDRESS
410
GATEWAY MSC (WITH I-HLR) ALLOCATES DLCI ON PHV AND PROVIDES PHV WITH BASE STATION ADDRESS
415
GATEWAY MSC (WITH I-HLR) TRANSMITS GATEWAY ORIGINATION REQUEST RETURN RESULT CONTAINING DLCI TO SERVING MSC
420
SERVING MSC PROVIDES DLCI TO THE BASE STATION TO ESTABLISH A VOICE PATH BETWEEN THE BASE STATION AND THE GATEWAY MSC VIA THE ATM PACKET NETWORK
425
GATEWAY MSC SETS UP OUTGOING CALL BASED ON SUBSCRIBER DATA AND DIALED DIGITS, WITH A CONNECTION OR LINK BETWEEN PACKET (ATM) VOICE PATH AND OUTGOING CALL
430
RETURN
435

FIG. 5

FIG. 6

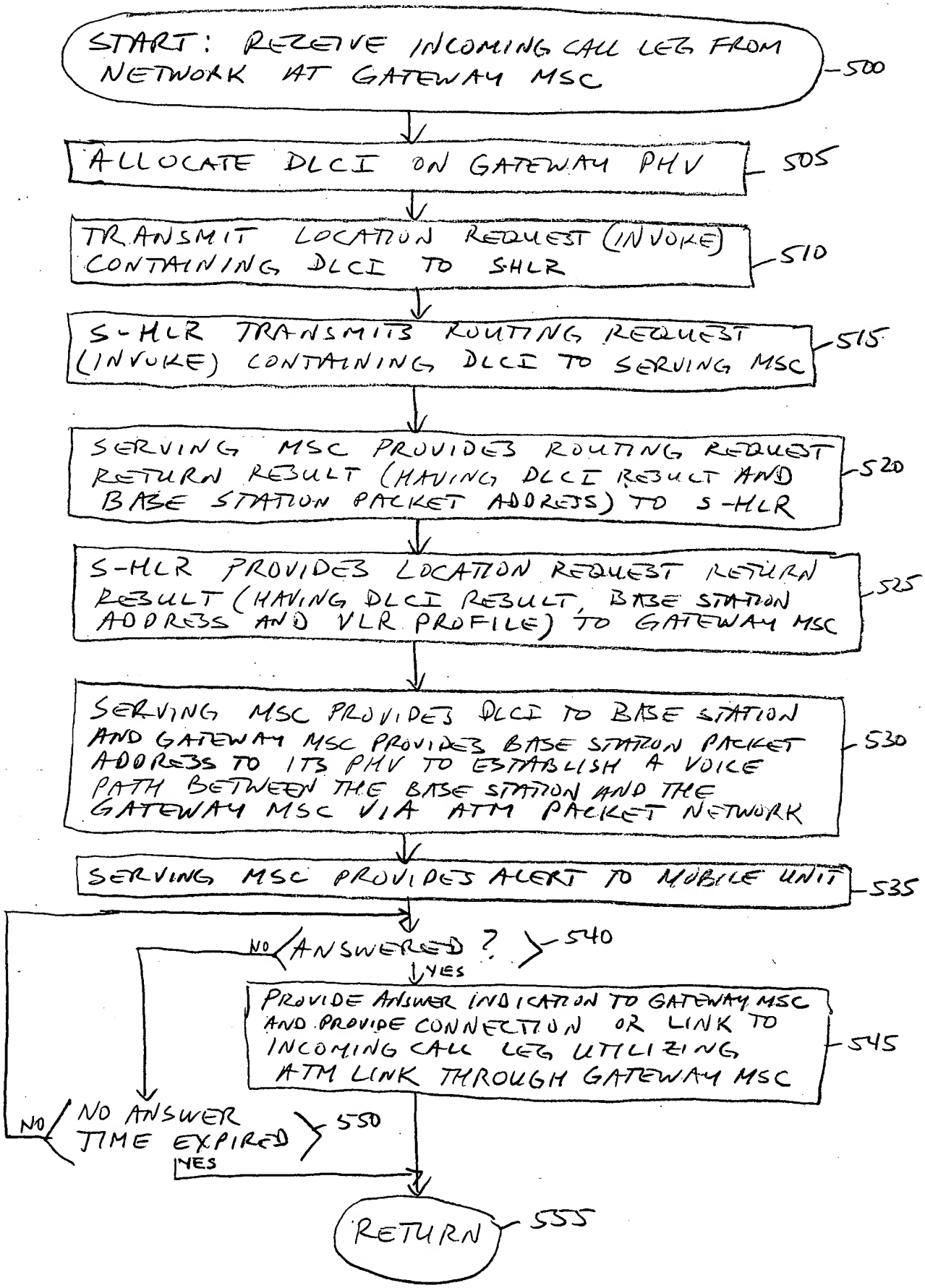
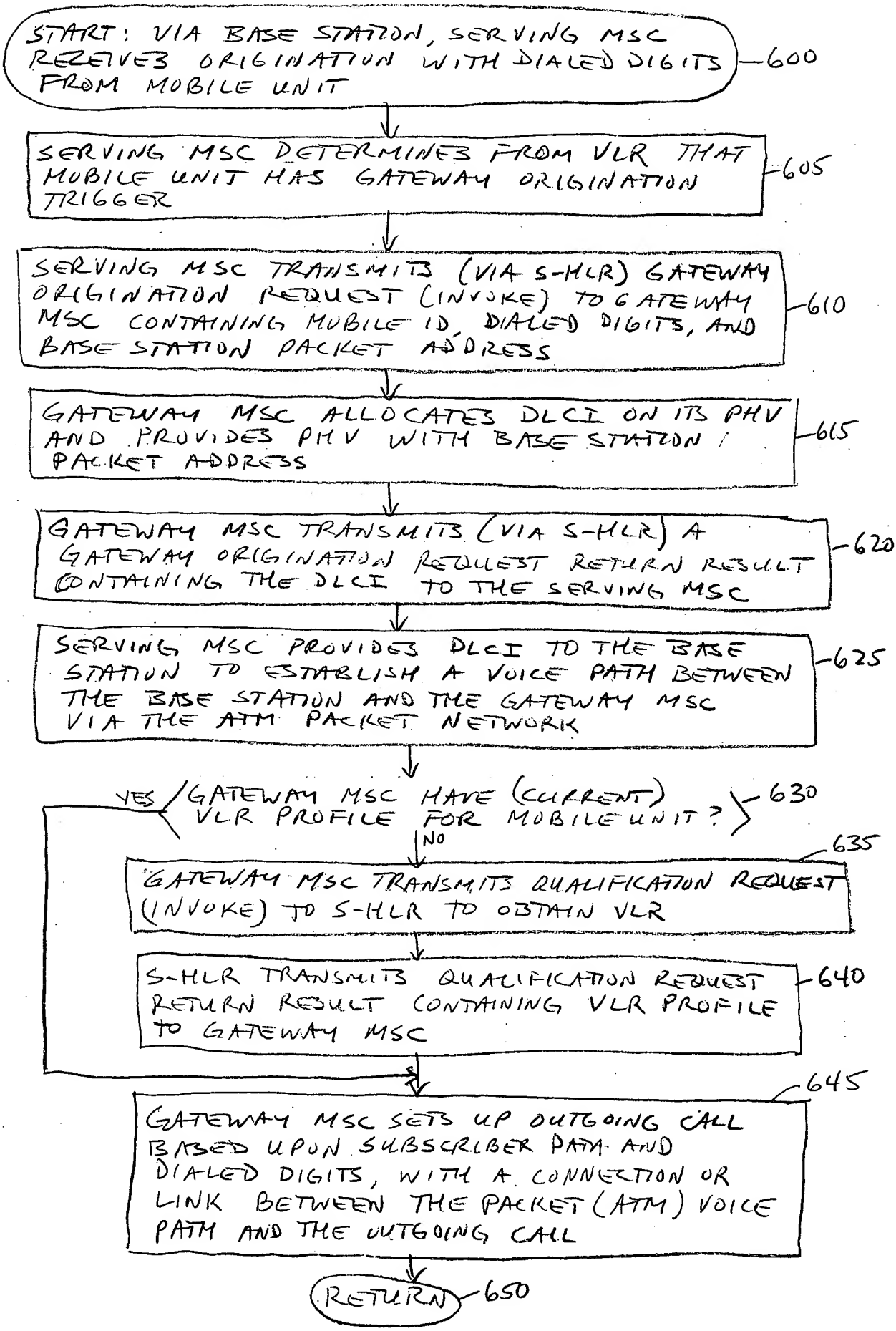

START: RECEIVE INCOMING CALL LEG FROM NETWORK AT GATEWAY MSC
500
ALLOCATE DLCI ON GATEWAY PHV
505
TRANSMIT LOCATION REQUEST (INVOKE) CONTAINING DLCI TO SHLR
510
S-HLR TRANSMITS ROUTING REQUEST (INVOKE) CONTAINING DLCI TO SERVING MSC
515
SERVING MSC PROVIDES ROUTING REQUEST RETURN RESULT (HAVING DLCI RESULT AND BASE STATION PACKET ADDRESS) TO S-HLR
520
S-HLR PROVIDES LOCATION REQUEST RETURN RESULT (HAVING DLCI RESULT, BASE STATION ADDRESS AND VLR PROFILE) TO GATEWAY MSC
525
SERVING MSC PROVIDES DLCI TO BASE STATION AND GATEWAY MSC PROVIDES BASE STATION PACKET ADDRESS TO ITS PHV TO ESTABLISH A VOICE PATH BETWEEN THE BASE STATION AND THE GATEWAY MSC VIA ATM PACKET NETWORK
530
SERVING MSC PROVIDES ALERT TO MOBILE UNIT
535
ANSWERED ?
NO
YES
540
PROVIDE ANSWER INDICATION TO GATEWAY MSC AND PROVIDE CONNECTION OR LINK TO INCOMING CALL LEG UTILIZING ATM LINK THROUGH GATEWAY MSC
545
NO ANSWER TIME EXPIRED
NO
YES
550
RETURN
555

FIG. 7


START: VIA BASE STATION, SERVING MSC RECEIVES ORIGINATION WITH DIALED DIGITS FROM MOBILE UNIT
600
SERVING MSC DETERMINES FROM VLR THAT MOBILE UNIT HAS GATEWAY ORIGINATION TRIGGER
605
SERVING MSC TRANSMITS (VIA S-HLR) GATEWAY ORIGINATION REQUEST (INVOKE) TO GATEWAY MSC CONTAINING MOBILE ID, DIALED DIGITS, AND BASE STATION PACKET ADDRESS
610
GATEWAY MSC ALLOCATES DLCI ON ITS PHV AND PROVIDES PHV WITH BASE STATION / PACKET ADDRESS
615
GATEWAY MSC TRANSMITS (VIA S-HLR) A GATEWAY ORIGINATION REQUEST RETURN RESULT CONTAINING THE DLCI TO THE SERVING MSC
620
SERVING MSC PROVIDES DLCI TO THE BASE STATION TO ESTABLISH A VOICE PATH BETWEEN THE BASE STATION AND THE GATEWAY MSC VIA THE ATM PACKET NETWORK
625
GATEWAY MSC HAVE (CURRENT) VLR PROFILE FOR MOBILE UNIT?
630
YES
NO
GATEWAY MSC TRANSMITS QUALIFICATION REQUEST (INVOKE) TO S-HLR TO OBTAIN VLR
635
S-HLR TRANSMITS QUALIFICATION REQUEST RETURN RESULT CONTAINING VLR PROFILE TO GATEWAY MSC
640
GATEWAY MSC SETS UP OUTGOING CALL BASED UPON SUBSCRIBER DATA AND DIALED DIGITS, WITH A CONNECTION OR LINK BETWEEN THE PACKET (ATM) VOICE PATH AND THE OUTGOING CALL
645
RETURN
650